

## WHAT IS CLAIMED IS:

1. An integrated thin film head, comprising:  
a lower shield layer formed on a substrate; a lower readgap layer  
formed on said lower shield layer; an MR sensor layer formed on  
5 said lower readgap layer; a lead layer joined with said MR sensor  
layer; an upper lead layer formed partially in contact with said  
lead layer, an upper readgap layer formed to cover said MR sensor  
layer; lead layer and upper lead layer; and an upper shield layer  
formed on said upper readgap layer, wherein a part of the lead  
10 layer in contact with the upper lead layer is formed thinner  
than the part thereof not in contact with the upper lead layer.

2. An integrated thin film head according to claim 1,  
wherein the lower shield layer is covered with the flat surface  
shape of the MR sensor layer and lead layer in the size smaller  
15 than the flat surface shape.

3. An integrated thin film head according to claim 2,  
wherein an additional protective layer of lower readgap is  
included among said lower shield layer, filler material and lower  
readgap layer, and/or wherein an additional protective layer  
20 of upper readgap is included between said upper readgap layer  
and upper shield layer.

4. An integrated thin film head, comprising:  
an undercoat layer formed on a substrate; a lower shield layer;  
a filler material filling the stepped area of said lower shield  
25 layer; a lower readgap layer formed on said lower shield layer

and filler material; an MR sensor layer formed at the position facing to the opposing surface of a recording medium on said lower readgap layer; a lead layer joined with said MR sensor layer in the reverse side to the opposing surface of recording medium;

5 an upper lead layer formed to extend in the reverse direction in contact with a part of said lead layer; an upper readgap layer formed to cover said MR sensor layer, lead layer and upper lead layer; and an upper shield layer formed on said upper readgap layer, wherein the part of said lead layer not in contact with

10 the upper readgap layer is formed thinner than the part thereof in contact with the upper readgap layer.

5. An integrated thin film head according to claim 4, wherein said lower shield layer is covered with the flat surface shape of said MR sensor layer and lead layer and is formed smaller

15 than said flat surface shape.

6. An integrated thin film head according to claim 5, wherein an additional protective layer of lower readgap is included among said lower shield layer, filler material and lower readgap layer, and an additional protective layer of upper

20 readgap is included between said upper readgap layer and upper shield layer.

7. A method of manufacturing an integrated thin film head having:

a undercoat layer formed on a substrate;

25 a lower shield layer formed in flat on said undercoat

layer;

a filler material for filling the stepped area of said lower shield layer;

5 a lower readgap layer formed on said lower shield layer and filler material;

an MR sensor layer formed at the position facing to the opposing surface of a recording medium on said lower readgap layer;

10 a lead layer joined with said MR sensor layer in the reverse side of the opposing surface of said recording medium;

an upper lead layer formed to extend in contact with a part of said lead layer;

an upper readgap layer formed to cover said MR sensor layer, lead layer and upper lead layer;

15 and an upper shield layer formed on said upper readgap layer, and the method comprising the steps of:

20 a first step to form a flat lower shield layer and a non-magnetic filler material on the undercoat layer formed on a substrate and to form a lower readgap layer on said lower shield layer and filler material;

25 a second step to form an MR sensor layer at the position on said lower readgap layer facing to the opposing surface of a recording medium and to form a lead layer joined with said MR sensor layer in the reverse side of the opposing surface of the recording medium;

a third step to form the lift-off profile photoresist pattern such as resist in which the part where said upper lead layer is formed is an aperture;

5 a fourth step to reduce the thickness, with the ion milling method or the like, of the part of said lead layer not in contact with the upper readgap layer to become thinner than the part in contact with the upper readgap layer using said lift-off profile photoresist pattern as the mask;

10 a fifth step to form the upper lead layer on said lead layer using said lift-off profile photoresist pattern as the mask;

a sixth step to remove said lift-off profile photoresist pattern; and

15 a seventh step to cover said MR sensor layer, lead layer and an upper lead layer with the upper readgap layer.

20 8. A method of manufacturing the integrated thin film head according to claim 7, wherein the lower shield layer in said first step is formed in such a manner that it is covered with the flat surface shape of said MR sensor layer and lead layer and is formed smaller than said flat surface shape.

9. A method of manufacturing the integrated thin film head according to claim 8,

further comprising the steps of:

25 a step to provide an additional protective layer of lower readgap among the lower shield layer, filler material and lower

readgap layer in said first step; and/or

a step to form an additional protective layer of upper readgap between the upper readgap layer and upper shield layer in said seventh step.